

CERASORB®

PROVEN TO BE EQUIVALENT TO AUTOGENOUS BONE

LITERATURE SUMMARY OF SOME OF THE 125+ PUBLICATIONS

The Case for Cerasorb® Grafting
Material Continues to Grow



THE NEW LEADER IN BONE REGENERATION

RIEMSER



2008

Knabe, C., Koch, C, Rack, A, Stiller, M (2008): Effect of β -tricalcium phosphate particles with Varying Porosity on Osteogenesis after sinus floor augmentation in humans. *Biomaterials* **29**: 2249-2258

“Unilateral sinus grafting was performed on 20 patients using a combination of β -TCP particles with 35% porosity (Cerasorb® Dental) or β -TCP particles with 65% porosity (Cerasorb® M) and autogenous bone chips. In the Cerasorb® M patient group, a larger amount of bone formation and particle degradation was observed...Six months after implantation...bone formation and matrix mineralization was still actively progressing...surrounding the particles...a greater porosity appears to be advantageous.”

2007

Bilk D. (2007): Cerasorb® M in Dental Surgery—Post-marketing surveillance study with 148 patients. *EDI Journal*, **3** (4): 40-46.

“Treatment assessments of the 148 patients performed after 3 and 6 months showed continuous decrease of radiographically visible granulate, so that most implants could be placed between 4 to 6 months. Handling, efficiency and healing of the bone substitute were also assessed as good and very good in the vast majority of cases. Given its excellent material properties, the good clinical results obtained with β -TCP Cerasorb® have not been surprising”

Hermann F., Lerner H., Palti A. (2007): Factors Influencing the Preservation of the Periimplant Marginal Bone. *Implant Dentistry*, **16** (2): 165-175

“Esthetic outcomes...are the result of a number of factors, particularly in the esthetic zone. An understanding of the meaning of biological width, of the integration of the platformswitching concept into implant treatment facilitates the preservation of a stable marginal bone level around the implant neck. A REVOIS clinical case...exemplifies our procedure”

Reinsch H., Spörl G, Thierfelder A. (2007): Use of the bone regeneration material Cerasorb® M as matrix for tissue engineering. *Zeitschrift für Regenerative Medizin*, **2** (1): 74-83. Article in German.

“Cerasorb® M is suitable as a scaffold for human bone cells in an outstanding matter, whereas by proliferation and secretion of extra-cellular matrix a substantial tissue growth takes place in the scaffold.”

Waluga R., Voigt A., Adolphs N., Nelson K., Klein M. (2007): Augmentation of a mandible defect after alveolar ridge distraction—use of β -tricalcium phosphate (β -TCP). *Impl J*, **5**: 28-32. Article in German.

“In a surveillance study, the use of β -TCP for filling a larger mandibular defect after distractions osteogenesis is reported. Despite a defect volume of 4-5 cc, β -TCP could be used with a good result even without additional autologous spongiosa.”

2006

Bilk D. (2006): A New Bioresorbable Membrane in Augmentation Surgery. *Implants*, **1**: 20-21.

“A new bioresorbable membrane (Inion) in combination with Cerasorb® M and PRP enables the placement of implants after sinus augmentation, even in cases where the residual bone height was to be considered borderline for single-stage procedure.”

Horch HH., Sader R., Pautke C., Neff A., Deppe H., Kolk A. (2006): Synthetic, pure-phase β -tricalcium phosphate Ceramic Granules (Cerasorb®) for Bone Regeneration in the Reconstructive Surgery of the Jaws. *Int. J. Oral Maxillofac. Surgery*, **35**: 708-713.

“The aim of the study was to investigate the long-term effect of the ceramic β -TCP at different sites of alveolar reconstruction and to evaluate its properties in 152 patients up to 52 weeks postoperative. Complete radiological replacement of β -TCP by autologous bone was found after approximately 12 months, indicating its osteoconductive properties.”

Ormianer Z., Palti A., Shifman A. (2006): Survival of Immediately Loaded Dental Implants in Deficient Alveolar Bone Sites Augmented with β -Tricalcium Phosphate. *Implant Dentistry*, **15** (4): 395-403.

“In all cases, bone defects were filled with β -tricalcium phosphate (Cerasorb®) and immediate loading was performed with the goal of improving implant survival. After up to 4 years of clinical follow-up, 1039 implants (97%) survived.”

Palm F. (2006): Cerasorb® M—a New Synthetic pure-phase β -TCP Ceramic Material in Oral and Maxillofacial surgery—An open study of 121 patients. *IMOJ*, **3**: 24-27.

“The results of this evaluation show Cerasorb® M to be an ideal synthetic material with a porosity concerning body’s own spongiosa, degradation in time and simultaneous formation of body’s own bone, which enables the placement of implants after 4–6 months.”

Schermer S. (2006): Augmentation and Defect Reconstruction with a New Synthetic Pure-Phase β -Tricalcium Phosphate - Open trial in 289 patients. *European Journal for Dental Implantology*, **1**: 31-39.

“Cerasorb® M is an ideal synthetic material for use in the dental practice which does not expose surgeons and patients to the risk inherent in materials of biologic origin nor does it require extensive pre-procedure patient information.”

Suba Z., Takacs D., Matusovits D., Barabas J., Fazekas A., Szabo G. (2006): Maxillary Sinus Floor Grafting with β -Tricalcium Phosphate in Humans: Density and Microarchitecture of the Newly Formed Bone. Clin. Oral Impl. Res., **17**: 102-108.

"In 17 edentulous patients, the maxilla sinus floor was extremely atrophied, which was surgically elevated bilaterally by insertion of Cerasorb® or autogenous bone graft. After 6 months, the new bone density was not significantly different. The augmented sinus floor was strong and suitable for anchorage of dental implants."

2005

Hille R. (2005): Alveolar Ridge Preservation: Bone Regeneration after Extraction. [translated from German] Implantologie Journal, **1**: 12-18.

"The resorption of the alveolar bone after extraction of teeth is considerably less due to simultaneous augmentation of the alveoli with Cerasorb® and the use of non-resorbable (TefGen) or resorbable (EpiGuide) membranes as barriers. The tolerability of the described procedures and materials is clinically evaluated as good to very good."

Plenk H., Lederer J. (2005): Histomorphology of Bone Regeneration after Sinus Floor Augmentation, Z Oral Implant, Jan **1**: 32-38

"Cerasorb® and Cerasorb® M were used in sinus floor elevation. After 4.5 months, growth of newly built bone was seen between the granules and the outer and inner surface as well as a smooth transition of the granulate to matrix of woven bone tissue."

Reich R., Appel T., Luckerath W. (2005): Improvement of Implant Survival in Sinus Grafts by Alloplastic Bone Replacement Materials, 2nd World Congress on Regenerative Medicine, Leipzig

"210 sinus grafts were performed in 188 patients. When used β -TCP alone or in combination with autologous bone, implant survival rates were up to 98%, resonance frequency analysis was identical to...levels in local D2 bone"

Szabó G. et al. (2005): A Prospective Multicenter Randomized Clinical Trial of Autogenous Bone versus β -Tricalcium-Phosphate Graft Alone for Bilateral Sinus Elevation: Histologic and Histomorphometric Evaluation. Int J Oral Maxillofac Implants. May-Jun; **20**

"Bilateral sinus grafting was performed on 20 patients. Cerasorb® only was used on the experimental side, and autogenous bone only on the control side. Histologically and histomorphometrically, there was no significant difference between Cerasorb® and autogenous bone in terms of quantity and rate of ossification."

Zijderveld S., Zerbo I.R., Van Der Bergh J.P., Shulten E. (2005): ten Bruggenkate C. Maxillary Sinus Floor Augmentation using Cerasorb® Alone Compared to Autologous Bone Grafts Int. J. Oral Maxillofac Implants, **20**: 432-440

"The results of the present study show that the sinus floor elevation procedure with β -TCP appears to be a reliable two phase procedure. Within one year of follow up, no implant losses or failure had occurred."

2004

Artzi Z., Weinreb M., Givol N., Rohrer M., Nemcovsky C., Prasad H., Tal H. (2004): Biomaterial Resorption Rate and Healing Site Morphology of Inorganic Bovine Bone and β -Tricalcium Phosphate in the canine. Int J Oral Maxillofac Implants. May-Jun;

19 (3): 357-68

"Complete bone healing was established in all grafted defects. However, at 24 months β -TCP particles were completely resorbed, whereas Inorganic Bovine Bone (IBB) particles still occupied a remarkable area fraction without significant resorption beyond 6 months."

Velich N., Nemeth Z., Toth C., Szabo G. (2004): Long-Term Results with Different Bone Substitutes Used for Sinus Floor Elevation. J Craniofac Surg, **15** (1): 38-41.

"A study of the frequencies of failures (graft material resorption and implant loss) after 810 maxillary sinus elevations with various graft materials or their combinations was conducted. Concerning the rate of loss of implants, the most favorable results were achieved with β -TCP alone or together with autogenous bone."

2003

Engelke W., Schwarzwäller W., Behnsen A., Jacobs H.G. (2003): Subantrosopic Laterobasal Sinus Floor Augmentation (SALSA): An up-to-5-year Study. The Int Journal of Oral & Maxillofacial Implants, **18** (1): 135-143

"118 sinus augmentations have been performed on 83 patients using particulate alloplastic augmentation material (tricalcium phosphate) with various amounts of autogenous bone and blood."

Schiroli G., Chiaramondia M. (2003): Human Histological 4 months Findings Using a Combination of Tricalcium Phosphate β -TCP and Platelet Rich Plasma (PRP) In Comparison with β -TCP Alone, Autogenous Bone Graft, DFDBA and Bio-Oss. International Congress "Bone 2003", Maastricht/NL.

"The histological evaluation of the biopsies displayed significantly more mature bone formation for the sites treated with β -TCP and PRP and β -TCP alone, followed by autogenous bone graft. The two sites filled with DFDBA and bovine bone graft displayed decreasing amounts of bone formation in the order of mentioning."

Tadic D., Epple M. (2003): A Thorough Physicochemical Characterization of 14 Calcium Phosphate-based Bone Substitution Materials in Comparison to Natural Bone. *Biomaterials* **25**: 987-994.

"14 different bone graft materials were investigated and the results were compared to synthetic hydroxy-apatite and natural bone samples ... Four of the five β -TCP ceramics show impurities whereas Cerasorb[®] shows no impurities. With respect to biodegradation, β -TCP ceramics are faster degrading than HAP ceramics."

2002

Palti A. (2002): A Concept for the Treatment of Various Dental Bone Defects. *Implant Dentistry* **11**: 73-78.

"We have treated almost 1000 bony defect sites in 267 patients with the bone regeneration material Cerasorb[®]. Being resorbed simultaneously with the formation of new bone, it is completely replaced by the patient's own vital bone within 6 to 12 months."

2001

Wiltfang J., Schlegel K.A., Merten H.A. (2001): Clinical Results after Application of Resorbable, pure-phase β -Tricalcium Phosphate Ceramic Cerasorb[®] in Enossal Bed. [translated from German] *ZWR*, **110**: 556-559.

"Cerasorb[®] proved to be suitable in the treatment of the described lesions. Bony substitution occurred after 6-7 months in lesions up to 2 ml. In larger defects (up to 7 ml) bone substitution occurred after 12 months. The material has proven useful for filling osseous defects after cystectomy, osteotomies and vertical chin lengthening."

2000

Reinhardt C., Kreusser B. (2000): Retrospective Study of Dental Implantation with Sinus Lift and Cerasorb[®] Augmentation. [translated from German] *Dentale Implantologie* **4**:18-26

"Thanks to its high biocompatibility and the fact that to some extent it forms a template for bone regeneration, β -tricalcium phosphate in the form of Cerasorb[®] is in many respects at least in value to autologous bone. The success rate of 99% (with 50 patients) ... using Cerasorb[®] alone is comparable to that achieved with autologous bone."

1999

Foitzik C. and Staus H. (1999): Pure-phase β -Tricalcium Phosphate for Bone Substitution in Periodontal Disease. [translated from German] *Die Quintessenz* **50**: 1049-1058.

"Clinical experience with 930 periodontal patients: "Synthetic pure-phase β -tricalcium phosphate is of special interest among the available bone substitutes, as this material is fully resorbed and replaced by natural local bone within a reasonable period of time. "

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